Educating Consumers of Modeling and Simulation: M&S Education for the Acquisition Workforce

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Report Documentation Page

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4th Annual Acquisition Research Symposium: Creating Synergy for Informed Change, May 16-17, 2007 in Monterey, CA

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Background – Navy Project

- Acquisition M&S Working Group (AMSWG)
  - Acquisition M&S Master Plan Objective 5: *Shape the Workforce*
  - M&S education & training
- M&S Acquisition/T&E Mission - Enable the Department of the Navy to effectively use M&S within and across the Acquisition Enterprise
  - Need a unified approach for enabling the workforce to determine WHICH tools to use, WHEN to use them, and HOW to use them across development lifecycle
  - Need training options to improve workforce capabilities to select and use M&S tools effectively and efficiently. These include
    - Initial education and training, refresher training, continuing education, and certification opportunities
- Ultimate Goal: M&S savvy workforce, able to apply M&S tools appropriately to enhance warfighting capability, reducing lifecycle development time and costs.

MSCO Project

- MSSC C&CC Business Plan, "*The M&S workforce is not equipped with adequate education, processes, practices, tools, technology and resources to support the institutionalization of M&S across the DoD's mission space*." Workforce development needs specified in the plan:
  - A DoD **Human Capital Strategy** for M&S to articulate competencies required.
  - A widely-accepted multi disciplinary M&S **Body of Knowledge** (BOK).
  - Dedicated **educational programs and curricula** are needed to enable DoD engineers, acquisition professionals and program managers to apply current technology with credibility.
- Project has been approved and funding is in place.

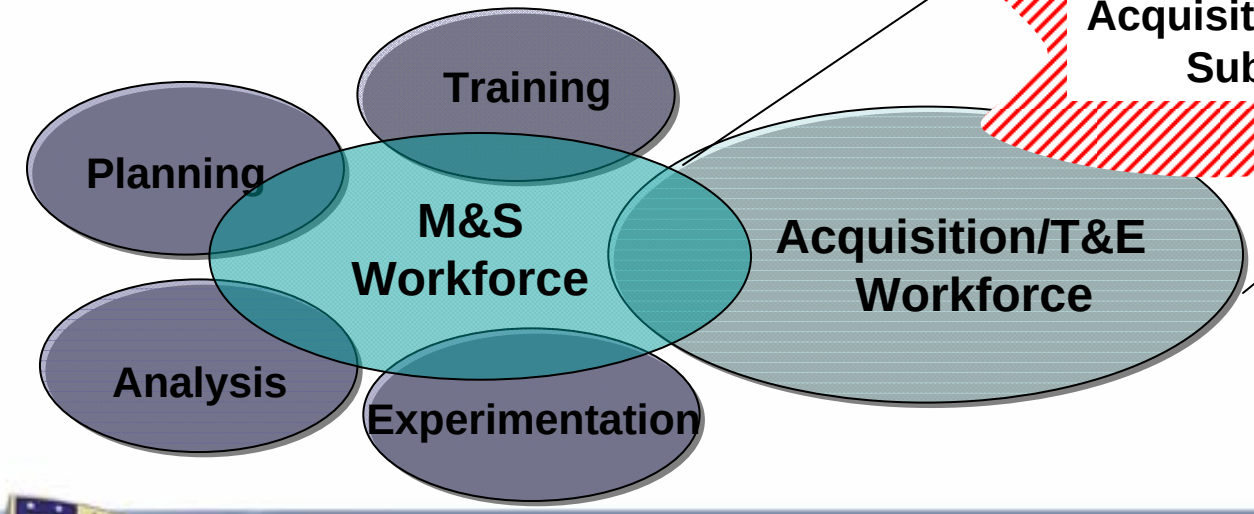
Market Segmentation

M&S Education for the Acquisition/T&E Workforce:
Building a M&S savvy workforce:
•WHICH tools to use,
•WHEN to use them,
•HOW to use them.
…Across the development lifecycle

Training Levels

Executive
Management
Application
General Awareness

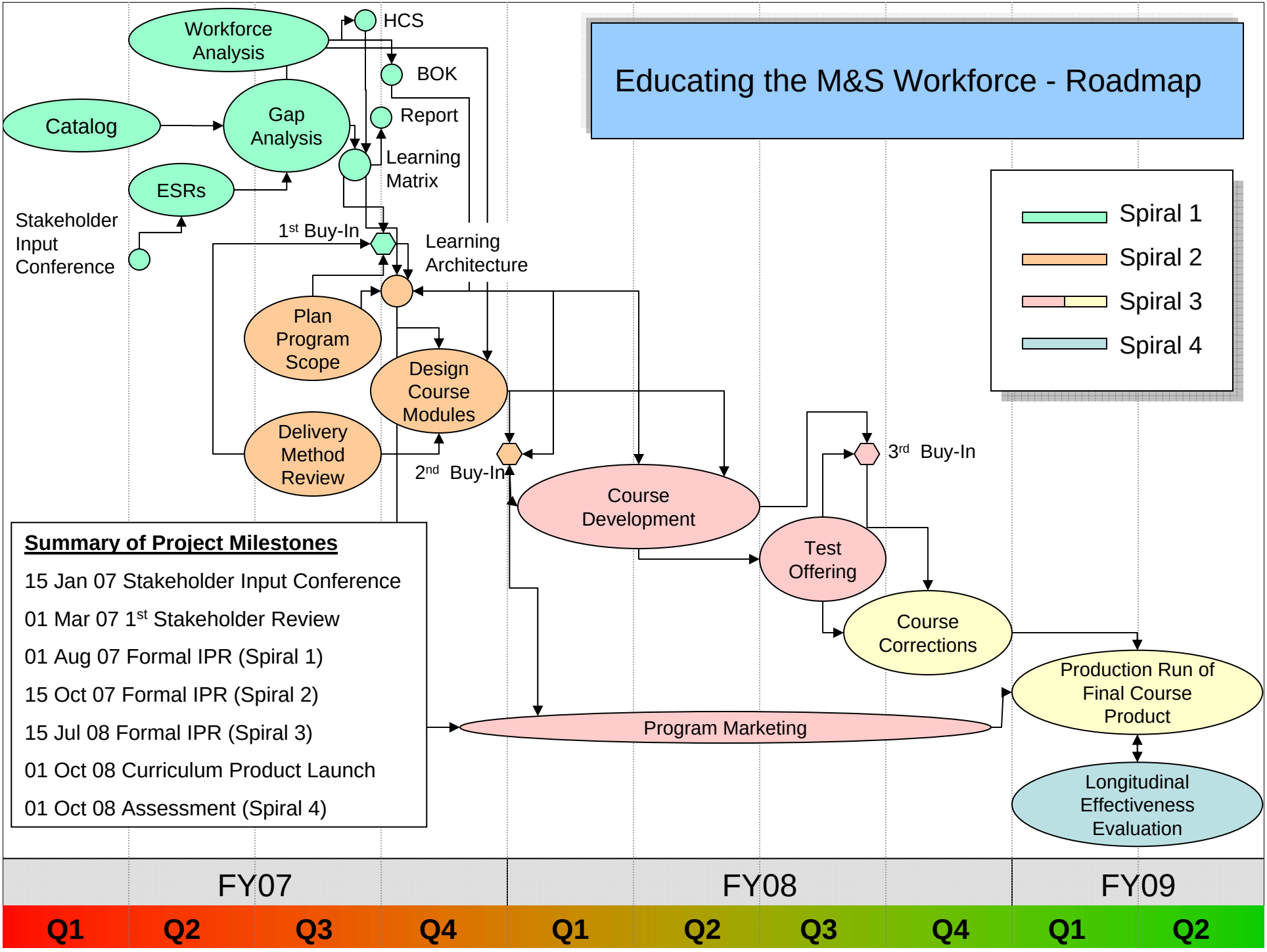
Acquisition Career Fields
Program Management
Systems Engineering
Test and Evaluation
Contracting
Logistics
Facilities Engineering
Auditing
Science & Technology
Information Technology
Business, cost estimating, and financial mgmt
Industrial and/or contract property management
Manufacturing, production and quality assurance
Purchasing

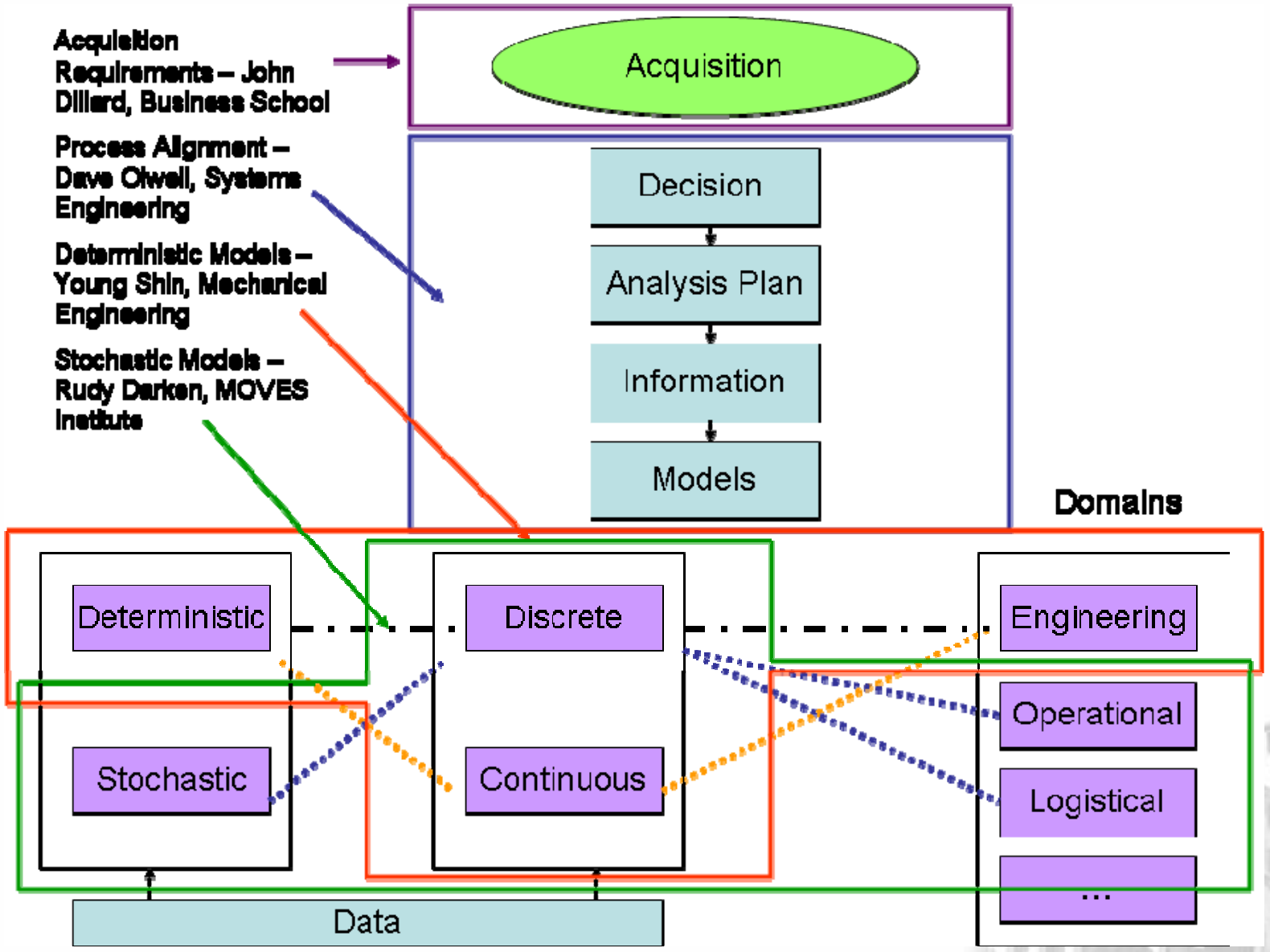


Project Overview

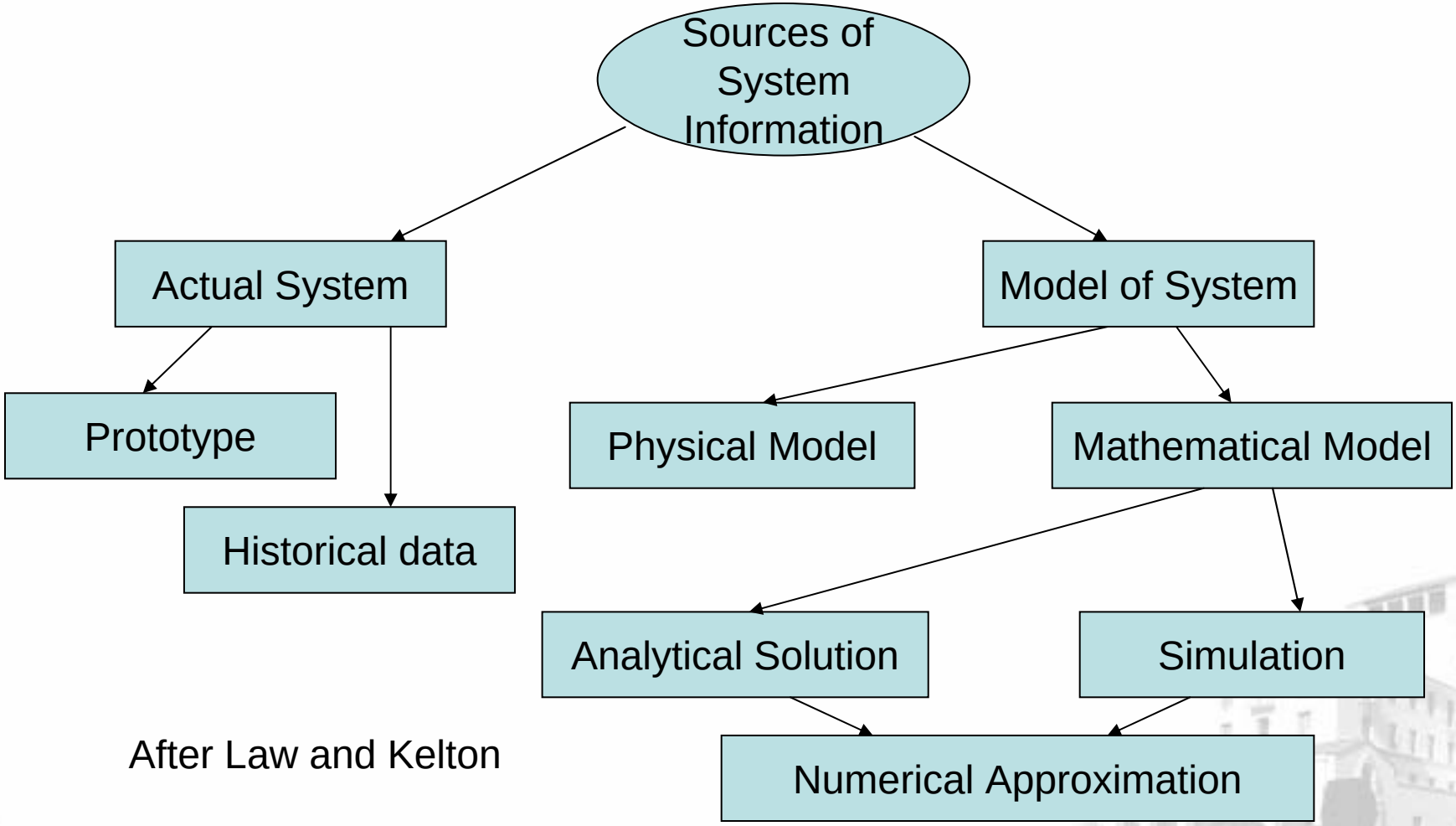
Deliverables are outcomes of each of 4 Spirals

1. Learning Matrix
   - Desired instructional content based on ESRs for Acquisition workforce
   - Integrates educational background, learning style, workforce role, and desired education end state
   - M&S Workforce Education Gap Analysis
2. Learning Architecture/Instructional Framework
   - Degree/certificate programs and continuous learning modules
   - Content modules (course syllabi)
3. Prototype Curriculum
   - Develop curriculum from content architecture
   - Deliver with endorsement/accreditation to DAU, NPS and services
4. Assessment
   - Longitudinal Curriculum Effectiveness Evaluation


Educating the M&S Workforce - Roadmap
Workforce Analysis
HCS
BOK
Report
Learning Matrix
Catalog
Gap Analysis
ESRs
Stakeholder Input Conference
1st Buy-In
Learning Architecture
Plan Program Scope
Design Course Modules
Delivery Method Review
2nd Buy-In
3rd Buy-In
Course Development
Test Offering
Course Corrections
Production Run of Final Course Product
Program Marketing
Longitudinal Effectiveness Evaluation
Spiral 1
Spiral 2
Spiral 3
Spiral 4
Summary of Project Milestones
15 Jan 07 Stakeholder Input Conference
01 Mar 07 1st Stakeholder Review
01 Aug 07 Formal IPR (Spiral 1)
15 Oct 07 Formal IPR (Spiral 2)
15 Jul 08 Formal IPR (Spiral 3)
01 Oct 08 Curriculum Product Launch
01 Oct 08 Assessment (Spiral 4)
FY07
FY08
FY09
Q1
Q2
Q3
Q4
Q1
Q2
Q3
Q4
Q1
Q2


Acquisition Requirements – John Dillard, Business School
Process Alignment – Dave Olwell, Systems Engineering
Deterministic Models – Young Shin, Mechanical Engineering
Stochastic Models – Rudy Darken, MOVES Institute
Acquisition
Decision
Analysis Plan
Information
Models
Domains
Deterministic
Discrete
Engineering
Operational
Stochastic
Continuous
Logistical
...
Data

Information Trade Space



After Law and Kelton

Backup

Stakeholder Group

- DASN RDT&E
  - CAPT Mike Lilienthal
- AFAMS
  - Dr. Ed Degnan
- HQDA
  - Gary Dahl
- INCOSE
  - Mark Sampson
- CVN
  - Leslie Taylor
- SPAWAR
  - Dr. Bill Rix
  - Kevin Charlow
- COMOPTEVFOR
  - Steve Whitehead
- Future Combat System
  - Oral Walker
- Broad educational discipline representation

Academic Partners

- Air Force Institute of Technology
- Defense Acquisition University
- George Mason University
- Johns Hopkins University/ Applied Physics Lab
- Old Dominion University
- Stevens Institute
- Texas A&M
- University of Alabama, Huntsville
- University of California, San Diego
- University of Central Florida

Note: In most cases, official partnerships are currently being negotiated.